

New England Cottontail

Wally Jakubas

About the Rabbit

The New England cottontail (NEC; *Sylvilagus transitionalis*), or cooney, was once a common rabbit in Maine with a range from Belfast to Kittery. However, NEC populations declined markedly as fields from abandoned farms reverted into mature forests and brushy habitats became residential developments.

In 2004, the Department closed the hunting season on NEC; and in 2007, we listed the species as endangered. As of the winter of 2012-2013, there were no known populations of NEC north of Portland and less than 300 rabbits left in the state. New England cottontails now exist in three

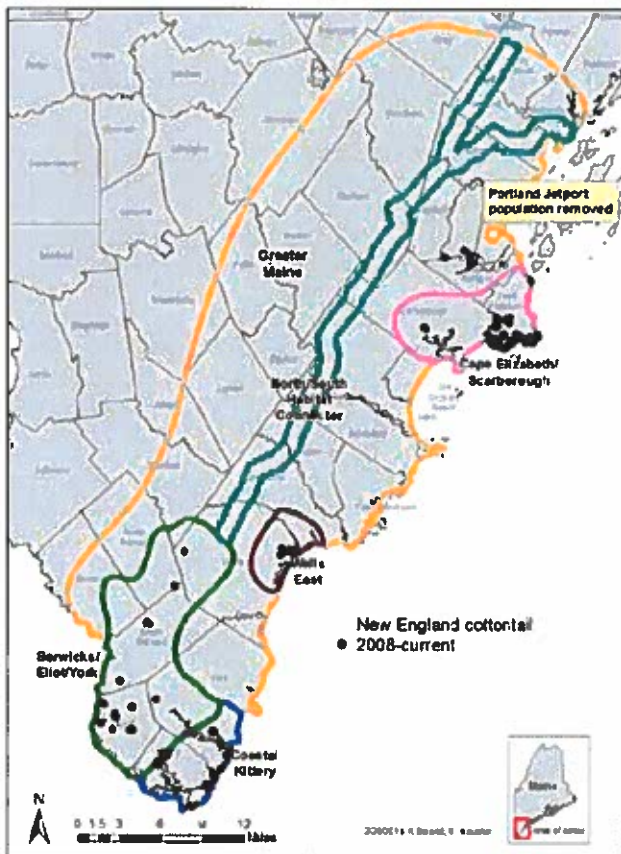
populations in Maine: 1) Cape Elizabeth/Scarborough, 2) Wells, and 3) Kittery/York/Elliot (Figure 1).

The decline of NEC in Maine and other northeastern states raises concern over the status of other wildlife species that use brushy/old field habitats. There are at least 42 Species of Greatest Conservation Need (SGCN) that use habitats similar NECs, including the eastern towhee, woodcock, and black racer.

Dense shrubby habitat is rare in southern Maine and makes up less than three percent of the land base. Therefore, most NEC restoration efforts are targeted at creating or maintaining dense shrublands that benefit NEC and other wildlife.

FIGURE 1. MAINE'S FIVE FOCUS AREAS AND APPROXIMATE LOCATION OF REMAINING NEW ENGLAND COTTONTAIL (NEC) POPULATIONS.

Cottontail populations are denoted by black dots and focus areas are named and delineated by various shades of gray lines. Because there are no NEC populations currently in the Greater Maine focus area, it has a lower priority for management than other focus areas. The North/South Habitat Connector is not a focus area but denotes a power utility right-of-way that NEC may use as a travel corridor.



The New Challenge

Traditionally, the four biggest challenges to NEC recovery in Maine have been:

1. Little remaining shrubland habitat
2. Small population sizes
3. Low genetic diversity resulting from isolated NEC populations and low rabbit numbers (Figure 9)
4. The social and biological limitations associated with restoring shrubby habitat

Unfortunately, a new threat has emerged to the restoration of NEC populations in Maine: the eastern cottontail rabbit (*Sylvilagus floridanus*). Until last year, Maine was the only state in the northeast that did not have eastern cottontail rabbits. Eastern cottontails are similar in appearance to NECs, but they are not native to New England. Around 1899, state wildlife agencies and hunting clubs introduced tens of thousands of eastern cottontails into states south of Maine, primarily to provide more hunting opportunity. Eastern cottontails were introduced on top of native NEC and snowshoe hare populations. The introduction of non-native animals or plants often threatens native wildlife populations. In this case, the introduced eastern cottontail rabbit can feed in a wider variety of habitats than NEC rabbits, resulting in higher survival and reproductive rates than NEC. Eventually, eastern cottontails can displace NEC when the two species occur together. Rhode Island, for example, lost most of its NEC population and now primarily has eastern cottontails.

Last year, wildlife biologists verified a population of eastern cottontails on Badgers Island (Kittery) and on Kittery's mainland. These rabbits likely came from across the river in Portsmouth NH, which has a large eastern cottontail population. Although biologists cannot say for certain how the rabbits arrived on Badgers Island, there is growing evidence (photographs, road-killed rabbits) that eastern cottontails may have used the recently rebuilt Memorial Bridge, which is over 800 feet in length, to access the island from New Hampshire. Biologists were successful in trapping most of the eastern cottontails off Badgers Island last year and were able to trap the only known eastern cottontail population on the mainland in Kittery. MDIFW continues to work with the City of Portsmouth and the Maine and New Hampshire Departments of Transportation to discourage further bridge crossings by these rabbits. The Department will continue its eastern cottontail trapping efforts to ensure a population does not become established on the mainland.

Habitat Restoration Efforts

MDIFW gets a tremendous amount of help conducting habitat restoration and NEC recovery projects from its partners in the USFWS, Natural Resources Conservation Service (NRCS), the Wildlife Management Institute, and Wells National Estuarine Reserve. Most of the NEC habitat restoration work in Maine occurs on private lands, and so we're especially appreciative of the many landowners who have participated in NEC conservation efforts.

Approximately 536 acres on 30 public land and non-NRCS private land sites are being, or have been, actively managed for NEC. These acres include existing habitat that is actively being maintained or enhanced, newly created habitat, and completed management.

A notable acquisition in 2017 was the Getchell Pasture property, a 180-acre parcel acquired by the Town of Wells that includes a reverting field, an extensive scrub-shrub wetland, and an upland forest. Jeff Tash, NEC Restoration Coordinator, presented a NEC management plan for this property to the Wells Town Council and gained approval for the Department to start habitat restoration work in late-summer 2018. The Department secured funding for this work through a Competitive State Wildlife Grant from the USFWS.

Meanwhile, we are continuing to identify and prioritize potential parcels for the Great Thicket National Wildlife Refuge through work that includes a comprehensive GIS-based parcel analysis.

Research Efforts

Drs. Kovach and Kristensen of the University of New Hampshire completed a study titled "Developing Improved Methods for New England Cottontail Population Estimation in Maine: Towards Reliable Assessment of Range-wide Conservation Goals." This study demonstrates a method for estimating the abundance of NEC using a spatially explicit capture-recapture model. The study was published in a scientific journal, and the Department is currently using this method to measure cottontail abundance on key management areas.

Monitoring Efforts

The Department continues to monitor NEC populations each winter. This work is coordinated out of MDIFW's regional office in Gray, ME by Cory Stearns.

RANGE-WIDE OCCUPANCY STUDY

One aspect of this work is our participation in a range-wide study to determine trends in the number of NEC-occupied habitat patches occupied in Maine, New Hampshire, Massachusetts, Rhode Island, New York, and Connecticut. This ongoing study helps guide NEC management efforts by letting wildlife managers know whether NEC populations are expanding or contracting geographically.

Biologists search brushy habitat patches for fecal pellets, which they send to laboratories in New Hampshire and Rhode Island for DNA analysis, which tells us whether the pellets were from a NEC, eastern cottontail, or snowshoe hare.

By combining Maine's occupancy data with that of other states, biologists will get an overall picture of the range-wide trend of the NEC population and whether population restoration measures are effective.

INVESTIGATING NEW RABBIT SIGHTINGS

In addition to the occupancy surveys, the Department surveys areas in Maine where biologists receive reports of new rabbit sightings or suspect NEC might occur. This includes historically-occupied patches that have not been surveyed in years. This past winter, three new areas were confirmed to have NEC, and rabbits were detected at two sites where they had not been seen in eight to 10 years.

ABUNDANCE SURVEYS AT MANAGEMENT SITES

Finally, Department biologists conduct abundance surveys at specific NEC management sites in an effort to closely track the number of rabbits at a site and/or to measure the effectiveness of certain habitat restoration efforts.

Like the range-wide occupancy study, measuring abundance also involves collecting pellets – but it requires us to collect many more. For these surveys, biologists walk through extremely thick brush and collect up to 60 pellets from each habitat patch. The pellets are then sent to a laboratory where DNA analysis tells us which individual rabbit deposited

the pellet. Once the rabbit's identity is known, biologists use the spatially explicit capture-recapture model developed by Drs. Kovach and Kristensen to determine the number of rabbits living in the habitat patch.

This work is supported by the federal Pittman-Robertson and State Wildlife Grants programs, Natural Resources Conservation Service, USFWS Partners' Program, Rachel Carson National Wildlife Refuge, Wells National Estuarine Research Reserve, the National Fish and Wildlife Foundation, Wildlife Management Institute, state revenues from sales of hunting and trapping licenses, and many private landowners.

